

REMARKS

Reconsideration and allowance of the subject application are respectfully requested. Claims 1-26 remain pending, claims 1 and 14 being independent.

Claim Objections

The Examiner objects to claim 1 based on the term "sensorless" which the Examiner states should not be used in the claims. Although Applicants do not fully understand the basis for this objection (particularly since the Examiner has indicated that the intended meaning of this term is clear), Applicants have amended claim 1 to use the term --indirect-- instead of "sensorless" in an effort to expedite prosecution of the present application. Applicants request that the Examiner suggest alternative language if the term --indirect-- is unacceptable.

Prior Art Rejections

1. 35 U.S.C § 102 Rejection

Claims 1-4, 13-17, and 26 stand rejected under 35 U.S.C. § 102 as allegedly being anticipated by Patel et al. (US Patent 6,163,127). This rejection, insofar as it pertains to the presently pending claims, is respectfully traversed.

Independent claim 1 is directed to an adaptive, indirect position sensing apparatus for driving rotor position of a synchronous machine. The apparatus of claim 1 comprises: a first rotor position deriving unit for generating first rotor position values by applying a first indirect rotor position calculation technique, which emulates a resolver, wherein said first indirect rotor position calculation technique generates first rotor position values as a function of AC excitation supplied to a field winding of the synchronous machine rotor; a second rotor position deriving unit for generating second rotor position values by applying a second indirect rotor position calculation technique; and a rotor position result output unit for outputting rotor position results over a range of rotor speeds as a function of said first rotor position values, said second rotor position values, and rotor speed.

Therefore, as emphasized by amendments presented herein, the first indirect rotor position calculation technique applied by the apparatus of claim 1 generates rotor position values as a

function of AC excitation supplied to a field winding of the synchronous machine rotor. See e.g., paragraph [0028] of the specification.

Patel discloses a system and method for sensorless rotor position detection, using a combination of two rotor position estimation techniques for low and high speed operation. Column 2, lines 11-24. During low speed operation, the system of Patel injects a signal into the voltage source inverter and extracts high-frequency currents that vary with rotor position of the motor 16.

Applicants note, however, that the low speed sensorless position calculation technique of Patel is based on injection of additional signal into an interior permanent magnet motor 16, and, as such, is not a function AC excitation supplied to a field winding of a synchronous machine rotor.

According to MPEP § 2131, “a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051 (Fed. Cir. 1987). “The identical invention must be shown in as complete detail as is contained in the ... claims.” *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913 (Fed. Cir. 1989).

At least for this reason, Applicants respectfully submit that Patel fails to anticipate claim 1, or any claim depending therefrom. Claim 14 and claims depending therefrom are believed to define over Patel based on similar reasoning.

In view of the above, Applicants respectfully request reconsideration and withdrawal of the Examiner’s rejection under 35 U.S.C. § 102.

2. 35 U.S.C. § 103 Rejections

Claims 5 and 18 stand rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Patel in view of Caroboiante (EP 0 558 261). Claims 6-7 and 19-20 stand rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Patel in view of Quirion (US Publication No. 2005/0151502). Claims 8, 11-12, 21, and 24-25 stand rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Patel in view of Jansen (US Patent 5,585,709). Claims 9-10 and 22-23 stand rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Patel in view of Rozman (US Patent 5,493,200). These rejections, insofar as they may pertain to the presently pending claims, are respectfully traversed.

As set forth on pages 4-8 of the Office Action, the Examiner relies on Caroboiante, Quirion, Jansen, and Rozman as allegedly pertaining to incremental features of certain dependent claims. Applicants respectfully submit, however, that the Examiner's reliance on these references fails to make up for the deficiencies of Patel discussed above with respect to the independent claims. Therefore, the asserted combination of references (assuming these references may be combined, which Applicants do not admit) fails to establish *prima facie* obviousness of any pending claim.

In view of the above, Applicants respectfully request reconsideration and withdrawal of the Examiner's rejections under 35 U.S.C. § 103.

Conclusion

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned at the telephone number below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

Pursuant to the provisions of 37 C.F.R. § 1.17 and § 1.136(a), Applicant hereby petitions for an extension of one (1) month in which to file a response to the outstanding Office Action. The required fee of \$120.00 is attached hereto.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

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